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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,662

10/11/2005

Hideki Nakata

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EXAMINER

NORMAN, MARC E

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

05/07/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/552,662	Applicant(s) NAKATA ET AL.	
	Examiner Marc E. Norman	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,7,8 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,7,8 and 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1, 7, 8, and 13-21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Yamai et al.

As per claim 1, Yamai et al. discloses an inverter circuit 5 for driving a brushless motor and a control unit for detecting rotational speed fluctuation caused by loads torque fluctuation (Abstract, lines 8-9) and controlling the phase and amplitude of a motor current (Abstract, lines 6-7) so as to restrict rotational speed fluctuation via the inverter circuit (see also claim 1 of Yamai et al.).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 7, 8, and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamai et al. in view of Takita.

As per claims 7 and 8, Yamai et al. do not teach an a.c. power source, rectifier, or capacitor, or current of the motor being controlled according to the absolute value of the voltage of the power source. However, such power source/rectifier arrangements are commonly used in combination with motor inverters as shown in the prior art presented by Takita (see for example Figure 6). Official notice is taken that controlling motor current according to the absolute value of the output voltage is a function commonly performed by these components. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these features of Takita with the system of Yamai et al. for the purpose of controlling the power input into the inverter.

As per claim 18, official notice is taken that it is typical and common for brushless motors to have one peak per rotation.

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As per claims 19-21, Yamai et al. teach the inverter/motor arrangement being used to drive a compressor (column 1, line 19), air conditioner (column 23, lines 16-17), and refrigerator (column 23, line 28).

Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takita in view of Yamai et al.

As per claim 13, Takita teaches a typical motor drive control circuit comprising power converter (rectifier 91), capacitor 92, and inverter 93. Takita et al. does not teach a control circuit wherein the control unit controls the motor current so as to restrict the rotational speed fluctuation of the brushless motor caused by load torque fluctuation and controls a current output from the a.c. power source based on the comparison between the amplitude of the motor current and the average of the motor current. Such rotational speed fluctuation controls are taught by Yamai et al. as discussed above regarding claim 1 and also at Figure 8 where Yamai et al. teach the algorithms being based on a relationship between the average and changing amplitudes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply these controls to the system of Takita for the similar purpose of reducing motor speed fluctuations.

As per claim 15, official notice is taken that this is a typical function of a rectifier.

As per claims 14 and 16, official notice is taken that it is the common function of capacitors within power conversion circuits such as that of Takita to charge and uncharge the capacitor based on the amplitude of the current (see for example column 1, lines 33-35 of Takita regarding capacitor 105 being a charge-and-discharge capacitor).

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As per claim 17, the motor current phase controls to restrict speed fluctuation are taught by Yamai et al. as already discussed above regarding claim 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc E. Norman whose telephone number is 571-272-4812. The examiner can normally be reached on Mon.-Fri., 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MN
/Marc E. Norman/
Primary Examiner, Art Unit 3744